We claim:

1. A method for reconstructing data, clocked at a symbol rate, from a signal which has been distorted and attenuated by transmission of a transmission link, comprising the following steps:

a) amplifying the signal amplitude attenuated by the transmission;

b) filtering high-frequency interference frequencies above the symbol rate;

c) discretizing the analog signal by means of an oversampled analog/digital converter;

d) performing a cable approximation by means of a digitally implemented cable approximation filter in order to obtain an equalized signal; and

e) interpolating and filtering the equalized signal by means of an interpolation and filter unit; and

f) decimating the interpolated and filtered signal by means of a decimator which is arranged in the control loop of a phase-locked loop for recovering the original data from the equalized signal.

2. The method according to Claim 1, wherein the analog/digital converter oversamples the supplied data signal n-times in order to transform low-frequency noise into a higher-frequency spectrum, particularly above the symbol rate.

3. The method according to Claim 1, wherein the step of filtering of high-frequency interferers is performed by means of a digital filter which is arranged between the analog/digital converter and the cable approximation filter.

4. The method according to Claim 1, further comprising the step of reducing of the data rate of the discrete signal by at least a factor of m=2, better by a factor of 5-10 or more, in order to obtain a decimated signal.

5. The method according to Claim 1, further comprising the step of filtering of low-frequency components below a predetermined lower cut-off frequency, particularly of direct-current components, by means of a digital filter.

6. The method according to Claim 5, wherein low-frequency components are filtered before the cable approximation is performed.

7. The method according to Claim 1, wherein the cable approximation is performed by means of a digital FIR filter.

8. The method according to Claim 1, wherein amplification of the signal amplitude and the cable approximation is controlled by a digitally implemented equalizer control unit.

9. The method according to Claim 1, wherein the sets of coefficients required for setting the cable approximation are temporarily stored in a memory device.

10. The method according to Claim 1, wherein the interpolation and low-pass filtering takes place outside a control loop of a subsequent phase-locked loop for clock and data recovery.

11. The method according to Claim 1, wherein a regenerated clock running synchronously with the signal clock is generated by means of the phase-locked loop.

12. The method according to Claim 1, wherein the decimation is controlled with the aid of a peak detector and of a phase detector.

13. The method according to Claim 1, wherein the clock control characteristic of the phase-locked loop is adjusted by means of a timing loop filter.

14. The method according to Claim 1, wherein the recovered data are output synchronously with the regenerated clock.

15. A device for reconstructing data clocked at a symbol rate from an analog signal which has been distorted and attenuated by transmission of a transmission link, comprising the following:

a) an amplifier for amplifying the signal amplitude attenuated by the transmission;

b) a low-pass filter for filtering high-frequency interferers above the symbol rate;

c) an analog/digital converter for discretizing the analog signal;

d) a digital cable approximation filter for generating an essentially equalized, discrete signal;

e) a digital interpolation and filter unit for interpolating and filtering the equalized signals; and

f) a phase-locked loop for recovering the data from the equalized signal, a digital decimator being arranged in a control loop of the phase-locked loop.

16. The device according to Claim 15, wherein the analog/digital converter oversamples the analog data signal n-times in order to transform low-frequency noise into a high-frequency spectrum, particularly above the symbol rate.

17. The device according to Claim 15, wherein following the analog/digital converter, a digital low-pass filter is provided for filtering high-frequency interferers above the symbol rate.

18. The device according to Claim 17, wherein following the low-pass filter, a decimator is provided in order to obtain a decimated, discrete signal for a subsequent high-pass filter.

19. The device according to Claim 15, wherein a high-pass filter is provided for filtering low-frequency components below a predetermined lower cut-off frequency, particularly of direct-current components.

20. The device according to Claim 15, wherein a digital cable approximation filter, particularly a FIR filter, is provided for signal equalization.

21. The device according to Claim 20, wherein an equalizer control unit is provided for controlling the setting of the amplifier and the characteristic of the cable approximation filter.

22. The device according to Claim 21, wherein the sets of coefficients for controlling the cable approximation filter are temporarily stored in a memory device.

23. A device for reconstructing data clocked at a symbol rate from an analog signal which has been distorted and attenuated by transmission of a transmission link, comprising the following:

a) an amplifier receiving a signal and generating an amplified signal;

b) a low-pass filter receiving the amplified signal and generating a filtered signal;

c) an analog/digital converter receiving the filtered signal and generating a digital signal;

d) a digital cable approximation filter receiving the digital signal and generating an equalized digital signal;

e) a digital interpolation and filter unit receiving the equalized digital signal and generating an interpolated signal; and.

f) a phase-locked loop receiving the interpolated signal, wherein a digital decimator being arranged in a control loop of the phase-locked loop.

24. The device according to Claim 23, wherein the analog/digital converter oversamples the analog data signal n-times in order to transform low-frequency noise into a high-frequency spectrum, particularly above the symbol rate.

25. The device according to Claim 23, further comprising a digital low-pass filter coupled between said analog/digital converter and said digital cable approximation filter.

26. The device according to Claim 25, further comprising a decimator coupled between said digital low pass filter and said digital cable approximation filter.

27. The device according to Claim 25, further comprising a high-pass filter coupled between said decimator and said digital cable approximation filter.

28. The device according to Claim 25, wherein the digital cable approximation filter is a FIR filter.

29. The device according to Claim 28, further comprising an equalizer control unit coupled with the amplifier and the cable approximation filter.

30. The device according to Claim 29, further comprising a memory device for storing the sets of coefficients for controlling the cable approximation filter coupled between the equalizer control unit and the cable approximation filter.